

# **Regulating Bitcoin and Block Chain Derivatives**

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## **Summary**

Bitcoins are scarce digital commodities that enable parties to transmit messages over a network that serves as a universal public ledger. Bitcoins fall within the definition of “commodity” under the Commodity Exchange Act (CEA) such that derivatives contracts that reference bitcoins are subject to regulation by the Commodity Futures Trading Commission (CFTC). Like other derivatives, Bitcoin derivatives would likely not be subject to the full scope of regulation under the CEA to the extent such derivatives involve physical delivery (as opposed to cash settlement) or are nonfungible and not independently traded. In addition, Bitcoin swaps are currently too illiquid to be subject to mandatory clearing. A growing number of firms are offering Bitcoin derivatives, most of which are for retail traders. In addition to derivatives that reference bitcoins, the Bitcoin (block chain) protocol can potentially enable automated derivatives contracts that securely trade, clear, and settle without the use of trusted intermediaries. The CFTC should consider an exemption for block chain derivatives that meet its policy objectives as a result of the rules that the underlying code embeds in the transactions.

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## I. INTRODUCTION

Bitcoins are scarce digital commodities that enable parties to transmit messages over a network that serves as a universal public ledger. This ledger, also known as the block chain, records the messages and is a common feature of all cryptocurrencies, so named because they use computational methods that securely transmit messages. Software developers are currently creating applications that use bitcoins to enable transactions that are automated, disintermediated (peer to peer), and secure. These transactions are often referred to “smart contracts” and are designed to take the form of decentralized exchange not reliant upon intermediaries such as banks, exchanges, or dealers.

As a reflection of its value and multifaceted nature, bitcoins are not just an input to innovative software applications. To date, the most common use of Bitcoin messages has been for trade—to transfer bitcoins from one person to another in exchange for fiat currency or for goods and services. For this reason, Bitcoin is commonly (and narrowly) viewed as a digital currency or payment mechanism.

When used as a means of exchange, the rate of exchange between units of bitcoin and fiat currencies has been volatile, as shown in the following figure:

**Figure 1: Bitcoin Price in U.S. Dollars, Nov. 2013 to Oct. 7, 2014**



Due to the price volatility of bitcoins, firms are developing derivatives so that merchants, payment processors, and others that accept or hold bitcoins can reduce their exposure to its price risk. Firms are also developing Bitcoin derivatives for two other reasons common to many types of derivatives: (1) to enable parties to speculate on prices, and (2) to enable parties to invest in bitcoins without actually holding bitcoins (known as a synthetic

investment). Without Bitcoin derivatives, merchants that accept bitcoins for payment typically immediately sell the bitcoins they receive to eliminate their exposure to price risk. This activity perversely reduces the price of Bitcoin the more it is adopted by merchants. But with Bitcoin derivatives, merchants are far more likely to hold the bitcoins they receive as payments, thereby causing the price of Bitcoin to be less volatile and better reflect its value to market participants.

This statement first discusses regulatory issues and framework applicable to derivatives that reference Bitcoin.<sup>1</sup> It next surveys the growing number of firms that offer Bitcoin derivatives. Finally, this statement considers derivatives that are transacted through the underlying Bitcoin block chain protocol and considers how they should be regulated.

## II. CFTC REGULATION OF BITCOIN DERIVATIVES

Bitcoin derivatives may take the form of futures, forwards, swaps, and options. Most of these derivatives are subject to regulation by the Commodity Futures Trading Commission (CFTC) pursuant to the Commodity Exchange Act (CEA).<sup>2</sup> The CFTC regulates futures and swaps markets to protect buyers and sellers of derivatives, and other participants in the derivatives markets, from fraud, market manipulation, abusive practices, and systemic risk.<sup>3</sup> Bitcoin derivatives would likely not be subject to the full scope of regulation under the CEA to the extent such derivatives involve physical delivery (as opposed to cash settlement) or are nonfungible and not independently traded. In addition, Bitcoin swaps are currently too illiquid to be subject to mandatory clearing.

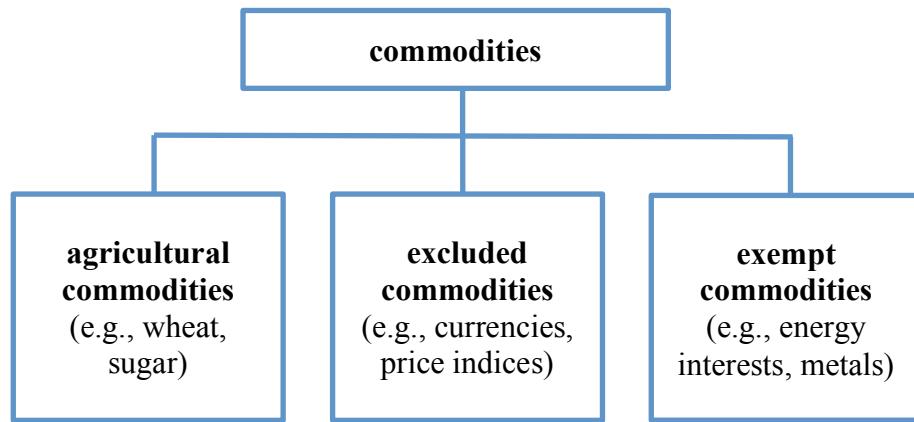
### A. Futures

In a futures contract, one party agrees to deliver an underlying asset or its cash-equivalent to another at a later time at a pre-specified price.<sup>4</sup> A party concerned with Bitcoin prices decreasing would take the “short” position in a futures contract and agree to sell Bitcoin at a specific price. For example, on January 1st one party may agree to sell 1 bitcoin on February 1st for \$800. This agreement would lock in a bitcoin-to-dollar exchange rate of 0.00125 bitcoins, or BTC. A company that owns or expects to be paid in bitcoins, and is concerned about the value of bitcoins dropping against the dollar, would be protected against that risk. On the other hand, if bitcoins became more valuable after January 1st, the futures contract would still require the buyer to sell at what would be below-market prices.

Futures are standardized with respect to all terms except for price. They specify the underlying asset, the amount of the asset to be exchanged, the place and month for delivery, and the price.<sup>5</sup> The CFTC defines a future as “[a]n agreement to purchase or sell a commodity for delivery in the future”

in which the price is determined at the outset of the agreement.<sup>6</sup> With few exceptions, the definition of commodity is defined broadly to include all agricultural products and “all services, rights, and interests . . . in which contracts for future delivery are presently or in the future dealt in.”<sup>7</sup> The CEA categorizes commodities into one of three categories: “agricultural commodities” such as soybean and wheat,<sup>8</sup> “excluded commodities” which are made up of financial interests such as prices and price indices, interest rates, and currencies,<sup>9</sup> and a catch-all category of “exempt commodities” that includes energy interests, precious metals, and measurable events such as the weather.<sup>10</sup> The following figure illustrates these categories of commodities:

**Figure 2: Categories of Regulated Commodities**



The CFTC also distinguishes commodities based upon whether they are financial or nonfinancial in nature.<sup>11</sup> Another distinction is between tangible commodities (such as crops and currencies) and intangible commodities (such as price indices, pollution allowances, and contractual rights).<sup>12</sup>

Commodity futures are subject to the CEA and regulated by the CFTC and entities that have self-regulatory responsibilities, including futures exchanges and the National Futures Association. Under the CEA, futures may only be traded on regulated exchanges.<sup>13</sup> Accordingly, trading a futures contract requires an account with a futures exchange and compliance with the exchange’s requirements such as posting collateral when entering the contract (initial margin) and paying more collateral if the market value of the contract decreases (variation margin). Trading futures often takes place through an intermediary known as a futures commission merchant.

The CEA categorizes regulated futures exchanges as a type of designated contract market that are required to comply with 23 “core principles.”<sup>14</sup> These principles effectively require exchanges to establish and enforce rules to protect customers, prevent fraud and manipulation,

maintain and disclose records, and maintain fair and orderly markets by, for example, enforcing position limits.<sup>15</sup> Regulated exchanges are available to ordinary retail investors.<sup>16</sup> In addition, other futures market intermediaries are required to register with the CFTC and are subject to wide ranging regulation. These intermediaries include futures commission merchants (that serve the function of brokerages),<sup>17</sup> introducing brokers,<sup>18</sup> commodity pool operators,<sup>19</sup> and commodity trading advisers.<sup>20</sup> The CEA and CFTC regulation impose a wide variety of requirements on these intermediaries, including obligations involving disclosure, reporting, recordkeeping, ethical requirements, protection of customer funds, and capital requirements.<sup>21</sup>

Although bitcoins fall under the CEA's definition of commodity, it is unclear what category of commodity they fall under. Bitcoins may be categorized as an excluded commodity if they are viewed as being a type of currency or other financial interest. A means of payment is certainly one use for bitcoins. On the other hand, there are several reasons why bitcoins should be categorized as an exempt commodity. First, bitcoins may be viewed as being similar to precious metals because they are limited in supply, capable of being physically delivered (at least in a digital sense), and obtained through the computational equivalent of physical mining. In addition, like metals, bitcoins are a capital good because they are used to produce other goods and services such as digital assets and contracts.<sup>22</sup> Second, the CFTC classifies intangible commodities as exempt commodities "if ownership of the commodity can be conveyed in some manner and the commodity can be consumed."<sup>23</sup> Bitcoins may accordingly be viewed as intangible exempt commodities because, even though bitcoins are digital, they can be owned and "consumed" in the sense of being spent (or traded). Finally, bitcoins may be categorized as an exempt commodity because commodities that fail to meet the definition of an agricultural commodity or an excluded (financial) commodity are classified as exempt commodities.<sup>24</sup> Classifying bitcoins as exempt commodities and not as excluded (currency) commodities would be consistent with the approaches taken by U.S. Treasury Department's Financial Crimes Enforcement Network and the Internal Revenue Service.<sup>25</sup>

Accordingly, despite the unique nature of bitcoins, they fall within the definition of commodity for the purposes of futures regulation. Whether bitcoins are classified as excluded or exempt commodities may have regulatory implications for Bitcoin swaps and for contracts sold to retail investors.<sup>26</sup>

Any futures contract referencing bitcoins will thus be subject to the full scope of regulation under the CEA. At a minimum, this means that Bitcoin futures must be traded on existing regulated exchanges such as the Chicago Mercantile Exchange. Otherwise, any platform that offers Bitcoin futures would have to come into compliance with the wide-ranging and costly regulation required by the CEA for regulated futures exchanges.

## B. Forwards

A forward is a contract whereby parties agree to trade an asset at a later date at a price specified in the present.<sup>27</sup> For example, a contract where an oil refiner pays an oil producer to deliver oil at a specific time in the future and at a specific price is a forward contract.<sup>28</sup> In contrast to futures, forwards are negotiated to the specific risks and other terms that parties are concerned about and do not trade on centralized exchanges.

Importantly, forward contracts are excluded from CFTC regulation.<sup>29</sup> The court in *CFTC v. Erskine* summarized the policy rationale behind the forward exclusion:

The purpose of [the] “cash forward” exception [to CFTC regulation] is to permit those parties who contemplate physical transfer of the commodity to set up contracts that . . . reduce the risk of price fluctuations, without subjecting the parties to burdensome regulations. These contracts are not subject to the CFTC regulations because those regulations are intended to govern only speculative markets; they are not meant to cover contracts wherein the commodity in question has an “inherent value” to the transacting parties.<sup>30</sup>

The forward exclusion originated in permitting farmers and crop buyers to lock in a price without being subject to a legislative scheme intended to curb “excessive speculation and price manipulations occurring on the grain *futures* markets,”<sup>31</sup> but not the grain markets themselves.<sup>32</sup> The forward exclusion applies not to price speculators, but to parties for whom the commodity has “inherent value;” that is, to those that actually use underlying commodity for commercial purposes.<sup>33</sup>

However, the distinction between a futures and a forward is not defined by statute or regulation and may be unclear. Accordingly, courts have adopted various approaches to determine whether parties are unlawfully using off-exchange futures contracts disguised as unregulated forwards.

Traditionally, the distinction between futures and forwards turns on an analysis of the totality of the circumstances surrounding the contracts in question. Under this approach, some of the main differences between futures and forwards are that forwards are non-standardized, do not trade on an exchange, and, perhaps most importantly, are intended by the parties to physically deliver the commodity as opposed to a cash settlement of the market versus contract price difference.<sup>34</sup> In the words of the CFTC, the “primary purpose of a forward contract is to transfer ownership of the commodity and not to transfer solely its price risk.”<sup>35</sup> Transfer of ownership may include the transfer of intangible commodities, such as pollution rights, such that a contract that transfers the ownership of an intangible may qualify as a forward contract.<sup>36</sup>

In *CFTC v. Co Petro Marketing Group*, the court found that contracts marketed to the public for the purchase of fuel that did not require physical delivery to be futures. The court explained that purchasers of such contracts were speculators without the intent or capacity for physical delivery.<sup>37</sup> Other factors the *Co Petro* court considered important in finding the contracts to be futures were their high degree of standardization, and that Co Petro acted like an exchange by promising to offset its customers' contracts and standing ready to liquidate the contracts and collect customer deposits.<sup>38</sup> In *In re Grain Land Cooperative*, the court found that a cancellation provision in a contract for a producer to deliver grain was the decisive factor in precluding the contract from being a forward.<sup>39</sup> It further held that the contracts in question were futures because they were used by producers to speculate, never intended for physical delivery, and standardized as to quantity, delivery, and fees.<sup>40</sup>

More recently, courts distinguishing between futures and forwards in the context of currencies have rejected the totality of the circumstances approach. Instead, they articulate the distinction as being that futures markets are for the sale of contracts independent of commodities while forward markets are for the sale of commodities.<sup>41</sup> In other words: a forward contract is a “*sale for deferred delivery*. A futures contract, by contrast, does not involve a *sale of the commodity* at all. It involves a *sale of the contract*.<sup>42</sup> In *CFTC v. Zelener*, the court held that contracts that permitted buyers to purchase currency on a deferred basis were forwards and not futures because the contracts were not fungible (each customer purchased a unique amount and had unique settlement dates) and hence there was no trading of the contracts.<sup>43</sup> The contracts were found to be forwards despite the fact that they permitted customers to obtain the economically equivalent position as a futures contract by continually extending their contracts and postponing delivery of the currency.<sup>44</sup> *Zelener* also identified two essential characteristics of futures (as opposed to forwards) markets: the existence of a centralized (intermediary) clearinghouse that takes on counterparty risk, and the ability to exit a position by purchasing an offsetting contract from a dealer.<sup>45</sup>

Yet another approach to distinguishing between futures and forwards was put forward by the Sixth Circuit Court of Appeals.<sup>46</sup> The court in *CFTC v. Erskine* stated that “a futures contract is a contract for a future transaction, while a forward contract is a contract for a present transaction with future delivery.”<sup>47</sup> The court argued its approach was superior to the traditional totality of the circumstances test and the *Zelener* approach because it applies to intangible commodities such as prices as well as physical commodities.<sup>48</sup> *Erskine* specifically defined each type of contract with a six-element set of characteristics. Applying those definitions to the contracts at issue, *Erskine* found that contracts to buy or sell foreign currencies were forwards because they were not fungible, not traded on an exchange, did not have set unit sizes or require a particular currency, and

did not have a set price or settlement date.<sup>49</sup> The *Erskine* court found the contracts to be forwards despite them being cash settled (no physical delivery) and permitting continuous roll over (or offsets).<sup>50</sup> Indeed, both of these latter two approaches to the futures/forward distinction reject the relevancy of whether the contract intends or results in physical delivery of the commodity.<sup>51</sup> (I'm not sure why he had to state two ways for future/forward. Is this really that important of an issue?)

Just like other commodities, certain types of contracts will qualify as Bitcoin forwards, and not Bitcoin futures, and hence not be subject to the full scope of regulation under the CEA. Depending on which of the foregoing approaches a court applies, Bitcoin derivatives are more likely to qualify as forwards to the extent such contracts involve physical delivery or are nonfungible and not independently traded.

### C. Swaps

A third type of potential Bitcoin derivative is a Bitcoin swap. A swap is a contract in which each counterparty agrees to an exchange of payments related to the value or return of some underlying asset or event.<sup>52</sup> The structure of Bitcoin swaps may resemble a foreign exchange (FX) swap. In an FX swap, two parties borrow a foreign currency from each other and agree to pay each other back at a specified exchange rate.<sup>53</sup> FX swaps may also be cash-settled and not entail the parties actually exchanging currencies. FX swaps are used to hedge against or speculate on foreign-exchange (rate) risk. A merchant accepting Bitcoin would be able to use a Bitcoin swap to protect itself against a price decrease by being promised to be paid if the value of Bitcoin drops relative to the dollar. Trading a swap that references an index of virtual currencies could be another way to hedge Bitcoin price risk.

The Securities and Exchange Commission (SEC) has exclusive jurisdiction over swaps based on securities and narrow-based indices. The CFTC has exclusive jurisdiction over most other types of swaps, including those based on commodities, currencies, and interest rates.<sup>54</sup> Swaps must be cleared by a regulated central counterparty clearinghouse<sup>55</sup> and be traded on either a designated contract market or a swaps execution facility (SEF), unless no such trading venue makes the swap available for trading.<sup>56</sup> Nonetheless, uncleared swaps are still subject to mandatory margin, reporting, and margin segregation requirements.<sup>57</sup>

The CEA defines a SEF as “a trading system or platform in which multiple participants have the ability to execute or trade swaps by accepting bids and offers made by multiple participants.”<sup>58</sup> SEFs must comply with 15 core principles and regulatory requirements including executing trades through an order book or a request for quote system involving three or more participants.<sup>59</sup> In contrast to multi-dealer SEF platforms, single-dealer trading platforms are not required to register and be regulated as a SEF or a

designated contract market.<sup>60</sup> In a single-dealer platform, only one market participant is able to trade with other traders.

Swaps contracts are not available to retail investors; parties to a swaps contract must be eligible contract participants.<sup>61</sup> In practice, parties to a swaps contract typically enter a trade with a futures commission merchant who in turn transacts with a clearinghouse.

The two major categories of regulated entities are swaps dealers that make markets in swaps, and major swaps participants, so defined because their swaps exposures are deemed to pose a systemic risk.<sup>62</sup> These entities are required to register with the CFTC and are subject to a wide range of disclosure, reporting, capital, clearinghouse margin, and business conduct requirements.<sup>63</sup> Non-financial, commercial end-users of swaps are not subject to entity-level regulation or the mandatory clearing and trading requirement so long as they only use swaps to hedge commercial risk.<sup>64</sup> For example, an airline may use swaps to hedge their exposure to increases in fuel prices without being subject to the regulations. Nonetheless, all users of swaps are prohibited from engaging in fraud or manipulative behavior.<sup>65</sup>

As of March 2014, the CFTC has applied the clearing requirement to standard interest rate swaps and certain index credit default swaps.<sup>66</sup> This determination was based on what swaps were actually being cleared by clearing organizations.<sup>67</sup>

The Treasury Department, pursuant to its legislative authority,<sup>68</sup> exempted certain physically settled foreign exchange swaps and forwards from the clearing and trading mandate.<sup>69</sup> This is because the physical settlement risk associated with the contracts is well managed and they are short-dated such that compliance with the mandate would not reduce systemic risk.<sup>70</sup> Non-deliverable foreign exchange forwards were not exempted by the Treasury Department, and therefore are subject to the clearing mandate unless the CFTC provides an exemption.

It is not clear what swaps the CFTC will determine qualify for an exemption or will subject to mandatory clearing requirement in the future. It is important to note, however, that not all swaps can be cleared and traded in a practical or economic sense. Among other characteristics, swaps that are capable of being cleared and traded must possess a sufficient degree of standardization and trading volume.<sup>71</sup>

Bitcoin swaps are not likely to be subject to the mandatory clearing requirement due to a lack of sufficient trading volume. Nonetheless, they would still be subject to the margin and other requirements for uncleared swaps. In addition, to the extent that Bitcoin swaps are structured and are recognized as foreign exchange swaps, they may also be exempted from mandatory clearing and trading.<sup>72</sup> Alternatively, to the extent a Bitcoin derivatives contract is structured and recognized as a contract involving a nonfinancial commodity intended for physical delivery, it will be deemed a

forward contract and hence excluded from any aspect of swaps regulation.<sup>73</sup>

Merchants that accept Bitcoin are likely to fall under the commercial end-user exception to mandatory clearing and trading. This is because merchants would be entering into the swap to hedge the commercial risk associated with accepting Bitcoin as a method of payment. In principle, the use of Bitcoins swaps for this purpose is no different than a merchant using FX swaps to hedge foreign currency exchange-rate risk when it sells overseas—a well-recognized category of exempt commercial end-user.<sup>74</sup>

#### D. Options

Option contracts are a fourth type of possible Bitcoin derivative. A call option gives the purchaser the right to purchase an asset at pre-specified price and only has value if that price is below the market price. A put option works the opposite way.<sup>75</sup> A call option would enable a merchant selling Bitcoin denominated goods to be protected if the price increases. A Bitcoin put option would protect against Bitcoin price declines by guaranteeing the option to sell at a pre-specified price.

Options on commodities fall within the definition of “swap” under the CEA.<sup>76</sup> Accordingly, options are generally regulated as swaps.<sup>77</sup> However, just as CFTC regulation may not reach forwards based largely on their physical delivery of commodities, options that entail physical delivery are exempt from CFTC regulation, but only if they are traded between entities that include financially sophisticated parties and commercial users.<sup>78</sup> Accordingly, Bitcoin options used by qualifying entities may be exempt from CFTC regulation if they are structured to involve physical delivery.

### III. BITCOIN DERIVATIVES FIRMS

Several firms offer (or purport to offer) market participants a variety of Bitcoin derivatives such as futures, options, and swaps. The following is a survey of such firms based upon information that is available through their website and other public sources. This analysis should not be construed as an endorsement of any firm or as implying that the firms are actually operational and offer agreements that function as claimed.

ICBIT is generally recognized as one of the largest Bitcoin derivatives firms, reportedly facilitating \$15 million worth of transactions in May 2014.<sup>79</sup> ICBIT describes itself as “The First Ever Bitcoin Futures Market” where “Margin trading using futures contracts is available now to everyone.” The firm’s website further states that ICBIT provides a margin system with upper and lower limits within a trading session that are similar to any major futures exchange.” ICBIT notes that the “typical” uses for its contracts are miners, merchants, and others to hedge Bitcoin price risk and for traders to speculate and arbitrage. Users do not purchase options or futures contracts from ICBIT itself but rather are matched with other buyers

or sellers who have an opposite and corresponding risk profile.<sup>80</sup>

As of October 5, 2014, ICBIT was offering five contracts, each dated monthly: October 2014, November 2014, December 2014, January 2015, and February 2015. Although described as futures, the contracts settle physically in bitcoins. ICBIT.se states its BTC/USD-4.14 contract is “Settled in BTC, quoted in USD”<sup>81</sup> and explains that for a party using their platform to take a short position in Bitcoin against the dollar, “if rate goes down he would *get as many Bitcoins as it's needed* to buy \$6000 on the spot market.”<sup>82</sup> On the unofficial FAQ, the description of ICBIT’s clearing process also implied physical delivery.<sup>83</sup>

Setting aside jurisdictional issues, ICBIT may be selling contracts that fall under the CFTC’s jurisdiction. The fact that ICBIT labels the contracts futures, refers to itself as a futures exchange, and recognizes that the agreements may be used for speculation suggests that the contracts are futures. On the other hand, other facts indicate that ICBIT is selling forwards. ICBIT seems to only match traders and not serve as a central counterparty. In addition, the ICBIT contracts contemplate physical delivery of bitcoins and not cash settlement.

China-based Bitcoin exchange OKCoin began to offer Bitcoin-USD futures in September 2014. On the company’s blog, OKCoin states that

Shortly following the launch of our USD order book we became the first major exchange to add a futures trading platform. We started off featuring three different contract types: weekly, bi-weekly, and monthly. Shortly thereafter we decided to add quarterly contracts as well due to customer demand. We have seen a strong response to our futures platform with our 24 hour volume reaching a high of ~60,000 BTC during this past week.<sup>84</sup>

France-based BTC Oracle claims to offer Bitcoin binary options as a broker. Unlike standard options, binary options either pay out a fixed amount if the option expires “in the money” or nothing if it does not (such that the buyer loses their purchase price). BTC Oracle offers option durations of 15 minutes, 3 hours, 1 day, 3 days, 7 days. The maximum size per transaction is 1 Bitcoin. An option predicated on the rise of Bitcoin prices at the end of the time period will be paid out with a multiplier if the price rises, and not if the price decreases. The converse is true for options predicated on the decrease in Bitcoin prices. BTC Oracle describes an example of a trade on its platform in the following way:

If you buy an option for 1 Bitcoin on up3h (thinking that the price will rise 3 hours from now) with 1.9 price multiplier, and the price on bitstamp is 124.27\$ at that time, then:

- If the price is 128.13\$ after 3 hours (the option expires in-the-money), we send you back  $1 * 1.9 = 1.9$  Bitcoins.

- If the price is 123.87\$ after 3 hours (the option expires not in-the-money), your Bitcoin is lost.

We look for the price at the exact time of the creation of the option. (The last trade before the option creation timestamp determines the price at a given time)

Even if your option starts at 123.12\$ and the price at the expiration is 123.13\$, then you win.

Conversely, we look for the exact price to check whether you lose.<sup>85</sup>

Other firms offering binary options on Bitcoin include Trade Rush located in Gibraltar and anyoption based in Cyprus.

New Jersey-based TeraExchange offers a CFTC regulated, cash-settled Bitcoin-dollar swap. As the firm describes it, the contract is a

bitcoin forward [that] is a short-term, cash-settled forward between two counterparties. On the contracted settlement date, the profit or loss is adjusted between the two counterparties based on the difference between the contracted rate entered into on trade date and the prevailing Tera Bitcoin Price Index on the agreed notional amount.<sup>86</sup>

The TeraExchange contract is not centrally cleared. It also utilizes a proprietary bitcoin price index as part of its swaps transactions to ensure the price of the contract is not readily susceptible to manipulation. Although TeraExchange worked with the CFTC in developing the contract, it was not technically “approved” by the Commission but was rather self-certified pursuant to CFTC regulation 40.2(a).<sup>87</sup>

Another platform offering Bitcoin swaps is the British Virgin Island registered Bitfinex. The firm offers total return swaps that require one party to exchange an interest rate in return for obtaining synthetic exposure to the return of an underlying cryptocurrency.<sup>88</sup> Both legs of the trade are cash. On October 6, 2014, it was reported that New York-based SolidX raised \$3 million to develop a total return swap also providing investors exposure to Bitcoin returns without being required to own actual bitcoins.<sup>89</sup>

Hong Kong-based Bitcoin Mercantile Exchange, or BitMEX, is currently in development. Although details of BitMEX contracts are not yet public, based on statements on its website, and the blog posts and an interview of its founder and CEO Arthur Hayes, the firm will be offering bona fide Bitcoin futures.

Singapore-based BTC.sx is a platform that offers bitcoin-denominated margin trading. Users can deposit bitcoins to a wallet created by BTC.sx and can then speculate on Bitcoin price movements by opening long or short positions for varying lengths of time.<sup>90</sup> For each open position taken,

users must hold deposits equal to the size of the trade multiplied by the price and by a measure of current market volatility.<sup>91</sup> This allows the BTC.sx platform to leverage each position at 100 times the value of the bet, allowing investors a broader possible return on each investment.<sup>92</sup> As of April 2014, the firm reportedly processed about \$44 million in Bitcoin-based trades.<sup>93</sup> By January of 2014, BTC.sx reported \$35 million in total trading since its launch and an active user base of 3,300 traders.<sup>94</sup> Camp BX is another platform that offers margined Bitcoin trades by matching users' orders and not serving as a counterparty to any trade. It is headquartered in Alpharetta, Georgia.

#### IV. BLOCK CHAIN DERIVATIVES

As noted in the Introduction, Bitcoin is not just a digital medium of exchange or even only a decentralized payment system. Rather, the messages underlying Bitcoin transactions can be used for a wide variety of software-enabled "smart" transactions, including complex payments embedded in financial transactions such as loans and the recording and conveyance of property titles. A smart commercial loan, for example, could be set up to automatically deduct the principal and interest payments from a borrower's account, immediately accelerate full repayment if the borrower breaches a loan covenant, and adjust the interest rate based on changes to the borrower's creditworthiness.

##### A. Block Chain Smart Contracts

Smart transactions are possible in part because transactions that use bitcoins to communicate information are programmable. This means that parties can determine upfront the nature of their contractual relationship in various states of world *and* have that relationship automatically carried out without the parties having to engage in any monitoring, additional conduct, or legal enforcement.

Using software and technology to improve financial transactions and related services hardly new, however. Software assists and enables many aspects of the derivatives market. These include storing, monitoring, and disseminating information about prices and other market data, the performance, risk, and other characteristics of specific counterparties, and the value and risk of individual positions and entire portfolios. Software also enables parties to trade according to pre-programmed algorithms and assists in reporting and confirming trades. Software is used in the clearing of trades by, for example, automating various aspects of collateral management and trade matching by clearinghouses using standardized messaging protocols such as Financial Information eXchange (FIX) or Extensible Markup Language (XML). Indeed, a goal of many derivatives software providers is to provide fully automated "straight through

processing” of transactions from order to settlement.

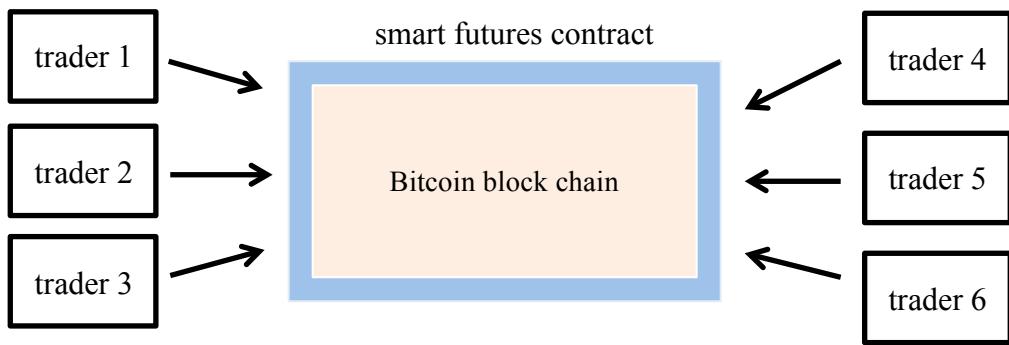
Despite the widespread use of software in derivatives markets, the bitcoin protocol may enable functionality that is currently not available. Contracts executed on the block chain are secure and publicly verifiable. The transactions are secure because, by using cryptography, the messages that communicate contract terms and contract performance cannot be reversed, tampered with, or corrupted. In addition, by using a public ledger, the transactions can be verified by, and communicated to, all market participants. Finally, because the block chain ledger is not operated by a particular institution but is decentralized, the bitcoin protocol enables transactions to take place without intermediaries. In effect, the block chain takes the place of an intermediary.

Although most block chain contract platforms are still works in progress, software developers have identified several features as being common to how they would operate. One feature is the use of multi-signatures (multi-sig). With multi-sig, two or more parties are required to approve a transaction before funds can be released or some other aspect of the contract can move forward. A closely related feature is placing funds in escrow and not allowing them to be released until each party is satisfied with the performance of the other as reflected in a digital signature. Additional security could be added to a transaction by requiring the signature of a third or even more parties, who play a role in authenticating performance. Information and data can be incorporated into block chain contracts through the use of “oracles” that monitor prices, performance, or some other aspect of the real world. Oracles interact with a block chain contract by providing a digital signature that reflects some state of the world. Ripple Labs is developing an oracle that executes code in addition to providing information about the world. The potential benefit of this type of oracle is that it is able to provide complex decisionmaking without altering an underlying block chain protocol in a way that could compromise its speed or integrity.<sup>95</sup>

## B. Block Chain Futures

Futures agreements are highly standardized and for that reason may be the first type of block chain enabled smart contract to be developed. Smart futures would not require an exchange or central counterparty to be traded, cleared, and settled. That is because these activities and the related decisionmaking would be embedded in the code that makes up the digital agreement. The following figure illustrates that traders would interact with a programmable futures contract built around the block chain instead of with an exchange:

**Figure 3: Futures Contract Built Around Block Chain**



A smart futures contract would have all its terms (quality, quantity, delivery) be pre-programmed except for the price. The price for each contract could be determined by an algorithm that incorporates market data through an oracle. In addition, the 23 core principles that regulated exchanges must comply with could be programmed as part of each futures agreement. For example, the block chain could be programmed to prevent excessive orders and large positions that could manipulate or disrupt markets. In terms of risk management, once a customer establishes an account and deposits in a specified electronic wallet the bitcoins required to purchase or establish margin, the futures contract could automatically make adjustments to the wallet to maintain the margin and settle the agreement upon expiration.

A block chain based futures market could have advantages over a traditional exchange-centered market. First, trades may settle faster and at lower cost with no (or fewer) derivatives intermediaries. In addition, a block chain futures market may be less susceptible to manipulation because there would be no incumbent firms that stand to benefit from the revenues generated by bad actors. The block chain (or several interconnected block chains) may also allow for the formation of a single, globally integrated futures market that is not fragmented by customers, products, or disparate national regulatory regimes. Block chain based technology may also allow innovations to occur by connecting futures markets to other block chain-based markets. These could include not only other financial markets, but also commodity markets that, for example, automatically enter into futures trades on behalf of an agricultural producer if projected crop prices drop below a certain level.<sup>96</sup>

### C. Regulating Block Chain Derivatives

Inevitably, and perhaps soon, the CFTC will have to face the question of how to approach regulation of block chain-based derivatives agreements

and markets. One potential approach would be for the CFTC to treat block chain derivatives as no different from traditional agreements. This would entail, for example, requiring block chain futures to ultimately interface and be traded on a regulated exchange subject to its standard rules and procedures.

Another approach would be for the CFTC to exempt certain block chain derivatives from the scope of the CEA. The qualifying transactions would be those that meet CFTC policy objectives as a result of the applicable rules embedded in the underlying code. In such a case, an additional layer of rules from the CFTC's regulatory regime would be unnecessary. This approach seems preferable because it does not compromise the CFTC's goals while at the same time fostering innovation.

## V. CONCLUSION

As the Bitcoin market matures, there may be less of a need for derivatives to reduce price volatility due to prices becoming more stable. But for now, at least, Bitcoin derivatives serve the very real purpose of furthering the widespread adoption of a digital commodity that in all likelihood has enormous innovative potential. In addition to derivatives that reference Bitcoin, block chain enabled smart derivative contracts may potentially provide broader innovations that lead to fundamental improvements in the way derivatives are traded and markets are organized. Accordingly, the CFTC should approach regulating Bitcoin and block chain derivatives in a way that is sensitive to the potential of Bitcoin and other distributed ledger technologies.

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<sup>1</sup> Section II is derived from the broader analysis of financial regulation as applied to Bitcoin found in Jerry Brito, Houman B. Shadab, and Andrea Castillo, *Bitcoin Financial Regulation: Securities, Derivatives, Prediction Markets, and Gambling*, Columbia Science and Technology Law Review (2014), available at <http://ssrn.com/abstract=2423461>.

<sup>2</sup> CEA, 7 USC §1 et seq.

<sup>3</sup> CFTC, Mission and Responsibilities. <http://www.cftc.gov/About/MissionResponsibilities/index.htm>

<sup>4</sup> Futures contract, CFTC Glossary, U.S. Commodity Futures Trading Commission Education Center, accessed March 27, 2014, <http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/>; John C. Hull, Options, Futures, and Other Derivatives 6 (6th ed. 2006).

<sup>5</sup> Hull, *supra* note 4, at 23-25; CME Group, A Trader's Guide to Futures, 13-14, <http://www.cmegroup.com/content/dam/cmegroup/education/files/a-traders-guide-to-futures.pdf>. Under some circumstances, a non-standardized contract may be categorized as a futures contract. See *In re Bybee*, 945 F.2d 309, 312-13 (9th Cir. 1991).

<sup>6</sup> Futures contract, CFTC Glossary, U.S. Commodity Futures Trading Commission Education Center, accessed March 27, 2014,

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<http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/>.

<sup>7</sup> 7 U.S.C. § 1a(9). Two interests that fall outside of the definition of commodity include onions and motion picture box office receipts. *Id.*

<sup>8</sup> CEA Section 1a(9); CFTC Glossary, Agricultural Commodity.

<sup>9</sup> See CEA Section 1a(19), 7 U.S.C. § 1a(19) (defining “excluded commodity” to include a wide range of financial interests).

<sup>10</sup> CEA Section 1a(20); CFTC Glossary, Exempt Commodity; CFTC Glossary, Weather Derivative (definitive “weather derivative” as “A derivative whose payoff is based on a specified weather event, for example, the average temperature in Chicago in January”).

<sup>11</sup> 77 Fed. Reg. 48227, 48232-48233 (Aug. 13, 2012) (defining nonfinancial commodities as consisting of (1) exempt commodities or agricultural commodities that are physically deliverable; and (2) intangible commodities whose ownership can be transferred and are consumable), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-18003a.pdf>.

<sup>12</sup> *Id.*

<sup>13</sup> CEA § 6(a); 7 U.S.C. § 6.

<sup>14</sup> CEA § 5(b-x), 7 USC § 7(d). A designated contract market is defined as “a board of trade or exchange designated by the CFTC to trade futures, swaps, and/or options under the CEA. A contract market can allow both institutional and retail participants and can list for trading contracts on any commodity, provided that each contract is not readily susceptible to manipulation.” Commodity Market, CFTC Glossary. [http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/glossary\\_co](http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/glossary_co); Core Principles and Other Requirements for Designated Contract Markets 77 Fed. Reg. 36612 (CFTC June 19, 2012), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-12746a.pdf>.

<sup>15</sup> See also 7 U.S.C. 6g(e) (requiring exchanges to publicly disclose daily trading volume).

<sup>16</sup> A similar regulatory framework applies to derivatives clearing organizations. 7 USC § 7a-1(c)(2). Retail investors routinely transact in off-exchange commodity transactions through the retail foreign exchange market. This is permitted so long as the retail investor’s counterparty is a regulated by the CFTC as an FCM or a retail foreign exchange dealer, or by another financial regulator such as the Securities and Exchange Commission. *See CEA § 2(c)(2)(D)* (regulating leveraged or margined retail commodity transactions); CFTC, Regulation of Off-Exchange Retail Foreign Exchange Transactions and Intermediaries, 75 Fed. Reg. 55410 (Sept. 10, 2010), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2010-21729a.pdf>.

<sup>17</sup> CEA 1a(28); 7 USC 1a(28) (defining futures commission merchant).

<sup>18</sup> 7 U.S.C. 1a(31) (defining introducing broker).

<sup>19</sup> 7 U.S.C. 1a(11) (defining commodity pool operator); Harmonization of Compliance Obligations for Registered Investment Companies Required to Register as Commodity Pool Operators, 78 Fed. Reg. 52308 (CFTC Aug. 22, 2013).

<sup>20</sup> 7 U.S.C. 1a(12) (defining commodity trading advisor); CFTC v. Equity Financial Group LLP, 572 F.3d 150 (3d Cir. 2009).

<sup>21</sup> 7 U.S.C. 6d(a)(1) (futures commission merchant registration requirements); 7 U.S.C. 6d(a)(2) (FCM customer funds segregation duties); 78 Fed. Reg. 68506, Enhancing Protections Afforded Customers and Customer Funds Held by Futures Commission Merchants and Derivatives Clearing Organizations, Nov. 14, 2013 <http://www.gpo.gov/fdsys/pkg/FR-2013-11-14/pdf/2013-26665.pdf>; 7 U.S.C. 6d(c)

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(requiring FCMs and introducing brokers to implement conflicts-of-interest systems); 7 U.S.C. 6g (reporting and recordkeeping requirements for futures commission merchants, introducing brokers, and floor brokers and traders); 7 U.S.C. 6f(c)(2) (risk assessment recordkeeping requirements for futures commission merchants); 7 U.S.C. 6d(g) (introducing broker registration requirement); CFTC, Minimum Net Capital Requirements for Futures Commission Merchants and Introducing Brokers, <http://www.cftc.gov/IndustryOversight/Intermediaries/FCMs/fcmibminimumnetcapital>; 7 U.S.C. 6m(1) (registration requirements for CTAs and CPOs); 7 U.S.C. 6o(1) (prohibiting fraud by commodity trading advisers and commodity pool operators); 77 Fed. Reg. 20127-20215 (CFTC Apr. 3 2012) (obligations of futures commission merchants); 7 U.S.C. 6n(3)(A) (recordkeeping requirements for commodity trading advisers and commodity pool operators); 77 Fed. Reg. 11252 (CFTC Feb. 24 2012) (compliance obligations for commodity pool operators and commodity trading advisers).

<sup>22</sup> Old Kharif, *Bitcoin 2.0 Shows Technology Evolving Beyond Use as Money*, Bloomberg, March 28, 2014.

<sup>23</sup> 77 Fed. Reg. 48227, 48233 (Aug. 13, 2012), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-18003a.pdf>

<sup>24</sup> CEA Section 1a(20); CFTC Glossary, Exempt Commodity.

<sup>25</sup> Financial Crimes Enforcement Network, Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies, March 18, 2013, [http://www.fincen.gov/statutes\\_regs/guidance/html/FIN-2013-G001.html](http://www.fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html); Internal Revenue Service Notice 2014-21, available at <http://www.irs.gov/pub/irs-drop/n-14-21.pdf>.

<sup>26</sup> If bitcoins are classified as currency-like excluded financial commodities, they may ultimately be subject to the Treasury Department's exemption from clearing and trading applicable to foreign exchange swaps and forwards. In addition, excluded commodity bitcoins sold to retail investors would likely be regulated like retail foreign exchange transactions. However, if bitcoins are classified as exempt nonfinancial commodities, they may be completely exempt from swaps regulation if they also qualify as a forward contract intended for physical delivery. 7 U.S.C. § 1a(47)(B)(ii).

<sup>27</sup> Forward Contract, CFTC Glossary, U.S. Commodity Futures Trading Commission Education Center, accessed March 27, 2014, <http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/>; Hull, *supra* note 4, at 3-4.

<sup>28</sup> Ronald H. Filler & Jerry W. Markham, *REGULATION OF DERIVATIVE FINANCIAL INSTRUMENTS (SWAPS, OPTIONS AND FUTURES)* 1-2 (2014).

<sup>29</sup> CEA § 1a(27) (excluding sales "of any cash commodity for deferred shipment or delivery" from the term "future delivery"); U.S. Commodity Futures Trading Com'n V. Reed, 481 F. Supp. 2D 1190 (D. Colo. 2007) ("The CFTC's exclusive jurisdiction does not extend to transactions involving the sale or physical delivery of the actual commodity, which are referred to as 'cash forwards' or 'spot' transactions.").

<sup>30</sup> CFTC v. Erskine, et al., 513 F.3d 309 (2008).

<sup>31</sup> CFTC v. Co Petro Marketing Group, Inc., 680 F.2d 573, 577-78 (9<sup>th</sup> Cir. 1982).

<sup>32</sup> Erskine, 5143 F.3d at 317 ("[T]he CEA was aimed at manipulation, speculation, and other abuses that could arise from the trading in futures contracts and options, as distinguished from the commodity itself.").

<sup>33</sup> *Id.* at 578 (noting that wheat has "inherent value" for farmers, operators of grain elevator storage companies, and flour millers).

<sup>34</sup> Forward contract, CFTC Glossary, U.S. Commodity Futures Trading Commission Education Center, accessed March 27, 2014, <http://www.cftc.gov/consumerprotection/educationcenter/cftcglossary/>. *See also* CFTC v.

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Erskine, 512 F.3d 309 (6th Cir. 2008) (defining and distinguishing futures and forwards contracts); *In re National Gas Distributors*, 556 F.3d 247 (9th Cir 2009); CFTC v. Hanover Trading Corp., 34 F. Supp. 2d 203 (S.D.N.Y 1999) (contracts where no delivery was contemplated were futures).

<sup>35</sup> 77 Fed. Reg. 48227, 48228 (Aug. 13, 2012), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-18003a.pdf>. For the purposes of being excluded from the statutory definition of “swap,” the CEA defines a forward contract as “any sale of a nonfinancial commodity or security for deferred shipment or delivery, so long as the transaction is intended to be physically settled.” 7 U.S.C. § 1a(47)(B)(ii).

<sup>36</sup> Id. at 48232-33. Accordingly, to the extent the CFTC considers bitcoins intangible because they are digital, that property should not preclude bitcoins from being recognized as physically deliverable pursuant to bona fide forward contracts.

<sup>37</sup> CFTC v. Co Petro Marketing Group, Inc., 680 F.2d 573, 578-79 (9<sup>th</sup> Cir. 1982).

<sup>38</sup> Id. at 579-581.

<sup>39</sup> *In re Grain Land Cooperative*, 978 F.Supp. 1267, 1273-74 (D.Minn.1997).

<sup>40</sup> Id.

<sup>41</sup> CFTC v. Zelener, 373 F.3d 861, 865-66 (7th Cir. 2004); CFTC v. Giovanni Fleury, et al., No. 10-15041 (11<sup>th</sup> Cir. June 27, 2012).

<sup>42</sup> Zelener, 373 F.3d at 865 (emphasis in original).

<sup>43</sup> Id. at 867. *Zelener*’s classification of the contracts as forwards has not been disturbed by subsequent amendments to the CEA that expanded the CFTC’s authority over retail forex transactions. *See Secure Leverage Grp., Inc. v. Bodenstein (In re Peregrine Fin. Grp., Inc.)*, 510 B.R. 190, 196 (Bankr. N.D. Ill. 2014) (“Congress did not reject the holding in *Zelener* that retail forex transactions are spot contracts”).

<sup>44</sup> Id. at 866-867. Pursuant to the Dodd-Frank Act, on December 2, 2011 the CFTC clarified the meaning of “actual delivery” solely for the purposes of retail commodity transactions. *See Retail Commodity Transactions Under Commodity Exchange Act*, 78 Fed. Reg. 52426, Aug. 23, 2013, <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-20617a.pdf>.

<sup>45</sup> Id. at 864-868. Indeed, the definition of “commodity contract” does not include uncleared commodity transactions. *See* 7 U.S.C. Section 2(c)(2)(D)(iii); 11 U.S.C. Section 761(4)(F)(ii).

<sup>46</sup> CFTC v. Erskine, et al., 513 F.3d 309, 322-23 (6<sup>th</sup> Cir. 2008).

<sup>47</sup> Id. at 322.

<sup>48</sup> Id. at 321.

<sup>49</sup> Id. at 325-326.

<sup>50</sup> Id. at 322.

<sup>51</sup> Zelener, 373 F.3d at 865; Erskine, 513 F.3d at 322.

<sup>52</sup> Hull, *supra* note 4, at 149.

<sup>53</sup> 7 U.S.C. 1a(25).

<sup>54</sup> Further Definition of “Swap,” “Security-Based Swap,” and “Security-Based Swap Agreement”; Mixed Swaps; Security-Based Swap Agreement Recordkeeping;, 77 Fed. Reg. 48,208 (August 13, 2012). Under the CEA, forward contracts (for nonfinancial commodities) are excluded from the definition of “swap.” CEA section 1a(47)(B)(ii), 7 U.S.C. 1a(47)(B)(ii) (excluding from the definition of swap “any sale of a nonfinancial commodity or security for deferred shipment or delivery, so long as the transaction is intended to be physically settled”).

<sup>55</sup> CEA Section 2(h)(1)(A). The CFTC, either upon application by a clearinghouse or on its own initiative, may require a category of swaps to be cleared. CEA 2(h)(2).

<sup>56</sup> CEA Section 2(h)(8). See also Core Principles and Other Requirements for Swap

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Execution Facilities, 78 Fed. Reg. 33476 (June 4, 2013), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-12242a.pdf>. The process of making a swap available to trade is subject to regulation. See CFTC, Process for a Designated Contract Market or Swap Execution Facility To Make a Swap Available to Trade, Swap Transaction Compliance and Implementation Schedule, and Trade Execution Requirement Under the Commodity Exchange Act, 78 Fed. Reg. 33606 (June 4, 2013), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-12250a.pdf>.

<sup>57</sup> Proposed Rule, 76 FR 23732 (April 28, 2011), Margin Requirements for Uncleared Swaps for Swap Dealers and Major Swap Participants, <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2011-9598a.pdf>; Protection of Collateral of Counterparties to Uncleared Swaps; Treatment of Securities in a Portfolio Margining Account in a Commodity Broker Bankruptcy, 78 FR 66621 (Nov. 6, 2013), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-26479a.pdf>

<sup>58</sup> CEA Section 1a(50), 7 U.S.C. 1a(50).

<sup>59</sup> Core Principles and Other Requirements for Swap Execution Facilities, 78 Fed. Reg. 33476, June 4, 2013 <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2013-12242a.pdf>.

<sup>60</sup> For a discussion of the different types of swaps trading platforms see IOSCO, Report on Trading of OTC Derivatives 29-33 (2011), <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD345.pdf>.

<sup>61</sup> CEA Section 2(e).

<sup>62</sup> Further Definition of "Swap Dealer," "Security-Based Swap Dealer," "Major Swap Participant," "Major Security-Based Swap Participant" and "Eligible Contract Participant;" Final Rules, 77 Fed. Reg. 30,596 May 23, 2012).

<sup>63</sup> 76 Fed. Reg. 43,851 (July 22, 2011) (large trader reporting).

<sup>64</sup> CEA Section 2(h)(7)(A), CFTC Rule 50.50. See also 77 Fed. Reg. 42,560, 42,590 (July 19, 2012). End-users must comply with certain reporting requirements. Id.

<sup>65</sup> Melissa Jurgens, Clearing Exemption for Swaps Between Certain Affiliated Entities, 17 CFR Part 50, RIN 3038-AD47 (April 1, 2013) <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/federalregister040113.pdf>.

<sup>66</sup> CFTC Regulations §180.1-180.2; see also 76 Fed. Reg. 41,398 (July 14, 2011).

<sup>67</sup> Sauntia S. Warfield, Clearing Requirement Determination Under Section 2(h) of the CEA, 17 CFR Parts 39 and 50, RIN 3038-AD86 (November 29, 2012) <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/federalregister112812.pdf>.

<sup>68</sup> Id. at 13.

<sup>69</sup> CEA 1a(47)(E).

<sup>70</sup> 77 Fed. Reg. 69,694 (Nov. 20, 2012).

<sup>71</sup> Id.

<sup>72</sup> IOSCO, Report on Trading of OTC Derivatives 22-29 (2011), <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD345.pdf>.

<sup>73</sup> There may be some ambiguity as to whether the intent to or actual exchange of physical currencies is required to qualify as an exempt FX swap or forward. See Andrew Kross, Foreign Exchange Forwards (a/k/a "Currency" or "FX" Forwards) as Swaps: The Half-Time Report (Mutual Funds, Hedge Funds, ETFs and Fund Advisers - THIS IS IMPORTANT), The Swap Report, Aug. 7, 2012, <http://www.theswapreport.com/2012/08/articles/dodd-frank-reforms-1/foreign-exchange->

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forwards-aka-currency-or-fx-forwards-as-swaps-the-halftime-report-mutual-funds-hedge-funds-etfs-and-fund-advisers-this-is-important/.

<sup>73</sup> 7 U.S.C. § 1a(47)(B)(ii).

<sup>74</sup> See 17 CFR 50.50(c)(i)(F) (recognizing that “a swap is used to hedge or mitigate commercial risk if” such swap reduces “risks in the conduct and management of a commercial enterprise” from “[a]ny fluctuation in interest, currency, or foreign exchange rate exposures arising from a person’s current or anticipated assets or liabilities”).

<sup>75</sup> Hull, *supra* note 4, at 6.

<sup>76</sup> CEA Section 1a(47)(A)(i), 7 U.S.C. 1a(47)(A)(i). The definition of “swap” excludes options on futures (which must be traded on a designated contract market). CEA section 1a(47)(B)(i), 7 U.S.C. 1a(47)(B)(i). Options on securities are regulated by the securities laws.

<sup>77</sup> Commodity Options, 77 Fed. Reg. 25320, 25325 (April 27, 2012), (“commodity options will be permitted to transact subject to the same rules applicable to any other swap”), 17 CFR Parts 3, 32, and 33, 77 F.R. 82 (April 27, 2012), <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-9888a.pdf>. *See also* Commodity Options, Final Rule and Interim Final Rule, 77 Fed. Reg. 25320 (CFTC Apr. 27 2012) (regulating commodity options dealers).

<sup>78</sup> Commodity Options, 77 Fed. Reg. at 25326, <http://www.cftc.gov/ucm/groups/public/@lrfederalregister/documents/file/2012-9888a.pdf>. These exempt “trade options” are still subject to CFTC rules regarding recordkeeping, reporting, anti-fraud, and anti-manipulation. *Id.* at 25326-25328. Other exempt commodity options include those embedded in forward contracts. See CFTC Division of Market Oversight Responds to Frequently Asked Questions Regarding Commodity Options, (September 30, 2012), [https://forms.cftc.gov/\\_layouts/TradeOptions/Docs/TradeOptionsFAQ.pdf](https://forms.cftc.gov/_layouts/TradeOptions/Docs/TradeOptionsFAQ.pdf).

<sup>79</sup> Jon Matonis, Inching Towards Bitcoin Derivatives, Coindesk, May 27, 2014.

<sup>80</sup> The ICBIT.se website FAQ directs to a Bitcointalk forum post. See: Super T, \*Unofficial\* ICBIT (BTC Futures Trading) – Help & FAQ’s, Bitcointalk.org forum post, April 1, 2013, accessed February 11, 2014, <https://bitcointalk.org/index.php?topic=164255.0.t>

<sup>81</sup> See <https://icbit.se/BUJ4>.

<sup>82</sup> About ICBIT Derivatives Market, <https://icbit.se/futures>.

<sup>83</sup> See <https://bitcointalk.org/index.php?topic=164255.msg1717099#msg1717099>

<sup>84</sup> OKCoin.com, Two Months In, Sept. 26, 2014.

<sup>85</sup> BTC Oracle, FAQ, <http://btcoracle.com/faq.php>.

<sup>86</sup> Tera Exchange, <http://www.teraexchange.com/bitcoin.html>.

<sup>87</sup> See TeraExchange - 40.2 Filing - 2014-25 Listing of USD-Bitcoin Swap (2014.09.11), available at <http://www.teraexchange.com/news/TeraExchange%20-2040.2%20Filing%20-%202014-25%20Listing%20of%20USD-Bitcoin%20Swap%282014.09.11%29.pdf>.

<sup>88</sup> See Bitfinex, Features, TR Swap, <https://www.bitfinex.com/pages/features#swap>.

<sup>89</sup> See, e.g., Ruth Reader, SolidX Raises \$3M to grow its Bitcoin swaps business, Tech Crunch, Oct. 6, 2014.

<sup>90</sup> Danny Bradbury, BTC.SX revives bitcoin margin trades, CoinDesk, May 23, 2013, <http://www.coindesk.com/btc-sx-revives-bitcoin-margin-trades/>

<sup>91</sup> FAQ, BTC.sx support, accessed March 26, 2014, <https://btc.sx/about/faq>.

<sup>92</sup> For example, let’s say a user wanted to bet 1/100th of a Bitcoin that the price of Bitcoin will increase over the next day. To take this position, the user must have the proper deposit amount in their BTC.sx wallet to cover the trade and function as a de facto guaranteed stop loss order. Let’s say this deposit amount is 1.5 BTC in this example. The user communicates to BTC.sx that she wants to bet 0.01 BTC on this position and BTC.sx

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places 1 BTC, or 100 times the position, on this bet. If the user wins the bet, she will make a handsome profit because most of her earnings are based on BTC.sx's 1BTC bet rather than her 0.01 BTC bet. If, the other hand, the user loses the bet, her losses will be liquidated from her 1.5 BTC deposit. This allows both BTC.sx and each user to minimize risk with guaranteed stop loss orders while increasing possible returns with margin trading. See: Joe Lee, Bitcoin Trading Platform BTC.sx Launches Private Beta: Offering Long and Short Leveraged Bitcoin Position Trading, PRNewswire, May 15, 2013, <http://www.prnewswire.com/news-releases/bitcoin-trading-platform-btcsx-launches-private-beta-offering-long-and-short-leveraged-bitcoin-position-trading-207556691.html>.

<sup>93</sup> Danny Bradbury, Trading Site BTC.sx Receives 500 Bitcoins in Seedcoin Funding Round, Coindesk, April 1, 2014.

<sup>94</sup> George Samman, The World's First Bitcoin Derivatives Platform Surpasses US\$35M in Trades, PRWeb, January 21, 2014, <http://www.prweb.com/releases/Bitcoin/Trading/prweb11494016.htm>.

<sup>95</sup> Alec Liu, Smart Oracles: Building Business Logic With Smart Contracts, July 16, 2014, <https://ripple.com/blog/smart-oracles-building-business-logic-with-smart-contracts/>.

<sup>96</sup> This latter point was made by Adam Luwin in an October 4, 2014 blog post, Bitcoin's Killer Apps, available at <http://blog.chain.com/post/99177371581/bitcoins-killer-apps>.